
Hardware development of a brake wire failure indicator for a car

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Abstract

In this paper, the hardware development of a brake wire failure indicator for a car is presented. This paper gives a brief review of the mini project work undertaken by us involves the design and development of the brake wire failure indicator. The main aim of our project is to develop brake wire failure indicator implemented for controlling the accidents and protect the livelihood. This brake wire failure indicator circuit can be done using buzzer and IC timer on PCB where the LED will blink with the condition given as input. The wire which has been assumed as brake wire is connected across terminals and led' s blink with the condition. This circuit is very simple and easy to build, it just requires a few components. The work concludes with an application being implemented practically. The developed prototype shows the efficiency and power of the invention. This brake failure indicator circuit checks the continuity of the brake wire and turn on the red light if the brake wire is broken. The work presented here is the mini-project work of the second semester engineering students of electronics & communication engineering department of Dayananda Sagar College of Engg., Bangalore, Karnataka.

Keywords – Brake, Failure, Indicator, Mechanisms, Control, PCB

1. Introduction to the work

Automobiles have been the primary mode of transportation for most of us and we depend on them for our day to day commute. Brake failure indicator circuit is a circuit that constantly monitor the condition of brake [1]. The sensor which is attached to the circuit of a brake failure by monitoring the brake switch and reminds you the condition of brake every time when brake is applied. This mechanism involves a Brake wire which runs from the brake lever to the braking mechanism set-up of the vehicle [2]. It is this wire that gets pulled when we apply brakes to stop our vehicle. Machines are widely controlled by automated control system. To meet the need of growing population economic, effective and reliable control of machines as well as their control system is necessary. The main objective of this project is to continuously monitor the braking system at each and every time during the operation of the vehicle [3]. Now a days, accidents are occurring due to lot of reasons, the one of the main reason is brake failure, it caused to due to poor maintenance, improper use and product defect, in order to safe guard the valuable human for accident the accident monitoring of brake is very important issue in automobile. The brake failure indicator circuit is a circuit that monitors constantly of the condition of brakes and provides an audio visual indication [4]. When the brake is applied in order to slow down or to stop the vehicle the green LED blinks and the buzzer beeps for about one second if the brake system is accurate and working properly. If brake system fails the red LED glows and the buzzer do not beep when the brakes are applied. The brake wire failure indicator circuit is used to check whether the brake wire is in proper condition or not [5]. If it is not broken, the circuit detects it and gives green led blinking as an output. The next condition i.e. if the wire is broken the circuit detects it and gives red

led blinking along with alarming sound via buzzer. The buzzer is known as “Indicator of the circuit” [6].

2. Proposed methodologies adopted

The Figure 1 gives the Working of the mini project module: The figure gives the circuit connection, where IC timer, buzzer, LED’s, resistors, capacitors, transistor are used. This figure or the circuit diagram gives the overall view of how to use the electronic circuitries for the design of the prototyped system [7].

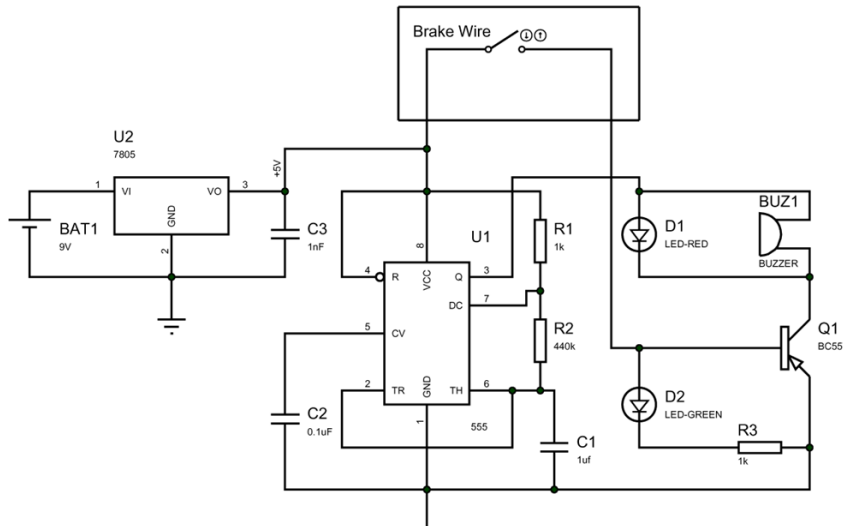


Fig. 1 : Overall circuit diagram of the car accident prone detecting system

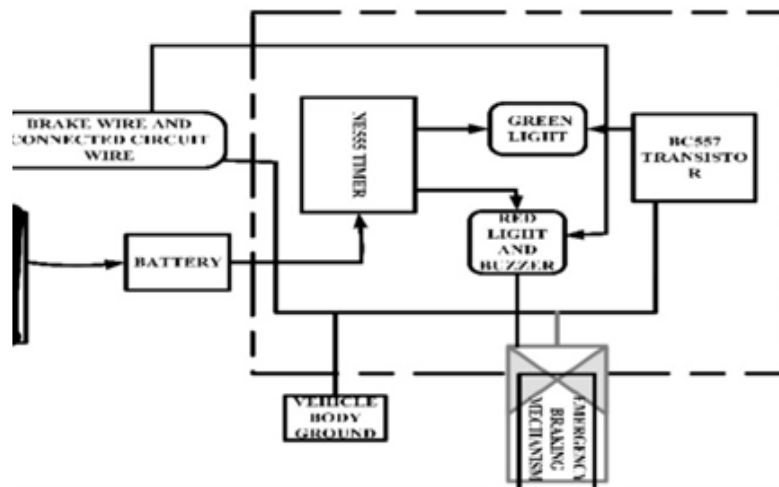


Fig 2: of the music rhythm based led lights

Fig. 1 gives the overall circuit diagram of the car accident prone detecting system, whereas the Fig. No. 2 presented as a data flow diagram gives the fundamental DFD or the block-diagrammatic block diagram of the music rhythm-based LED’s and could be used as a proposed method in the work which we are going to implement in our project work. These are connected as respect to above diagram and got required output [8][9][10]. The power supply is given the positive terminals are connected to IC timer pins. And the negative terminal is grounded. The brake wire is connected across red led, buzzer and power supply if it is broken then the timer triggers to sound the buzzer where it beeps according to timer [23][24][25]. The green led will blink when the brake wire is in proper condition or it is enough safe to travel. The transistors are used to amplify signals from the brake wire, It can used as early warning system. It constantly monitors the condition of brake and give audio visual indication. It is as such a device operator so that any harmful damage and accidents cause by failure of brake failure is indicated, operated and prevented [11][12][13].

3. Applications of the circuit developed

- Commonly serves as a fail-safe mechanism in vehicles such as Cars, Buses, Bikes.
- The circuit can be implemented in mechanical cranes to avoid mis conception.
- Can be implemented in mechanical machines to keep a check on internal wire damage.
- Can be used to detect any broken wire used in house, office etc.
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4. Conclusive remarks

The hardware development of the circuit diagram of a brake wire failure indicator for a car is presented [14][15][16]. This paper gives a brief review of the mini project work undertaken by us involves the design and development of the brake wire failure indicator. The main aim of our project is to develop brake wire failure indicator implemented for controlling the accidents and protect the livelihood. This brake wire failure indicator circuit can be done using buzzer and IC timer on PCB where the LED will blink with the condition given as input [17][18][19]. The wire which has been assumed as brake wire is connected across terminals and led' s blink with the condition. This circuit is very simple and easy to build, it just requires a few components. The work concludes with an application being implemented practically. The developed prototype shows the efficiency and power of the invention [20][21][22].

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